

Abstract

A method for detecting differences between two graphical programs. The graphical programs comprise graphical code. The graphical programs may include objects, preferably arranged as a user interface panel, including controls and indicators, and a block diagram, including graphical code function blocks connected together as a data flow program. Directed graph data structures are created to represent the graphical programs, wherein the vertices of the graphs are the objects of the graphical programs and the edges of the graphs are data flow signals of the block diagram and/or hierarchical relationships of the user interface panel objects. The objects of the two graphical programs are heuristically matched together using a scoring approach. The scores are stored in a match matrix and indicate a degree of similarity between an object in the first graphical program and an object in the second graphical program according to one or more criteria. The matching criteria include object type, object connectivity and object attributes. The match matrix is resolved to generate a 1:1 or 1:0 correspondence between the objects in the first and second graphical programs based on the match scores. The matching information is used to determine differences in the two graphical programs. First, using the matching information and a compare engine, the objects are grouped into exact matching subgraphs and then into non-exact matching subgraphs. Non-exact matching subgraphs are matched and merged where possible using transitivity. Objects in the non-exact matching subgraphs are compared using the compare engine to detect additional differences. All detected differences are stored and displayed for the user. The differences may be displayed in various manners such as drawing a circle around the differences, highlighting the differences by color, and/or displaying a textual description of the differences.

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